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## OFFICIAL UNITED STATES STANDARDS FOR GRADES OF PORK CARCASSES (BARROW AND GILT)

(Title 7, Ch. I, Pt. 53, Sections 53.140–53.143 of the Code of Federal Regulations)

### United States Department of Agriculture

#### AGRICULTURAL MARKETING SERVICE

#### SERVICE AND REGULATORY ANNOUNCEMENTS NO. 171

The following is a reprint of the official United States standards for the grades of barrow and gilt carcasses promulgated by the Secretary of Agriculture under the Agricultural Marketing Act of 1946 (60 Stat. 1087; 7 U. S. C. 1621 et seq.) and other authority. The standards are reprinted as amended effective July 5, 1955.

#### DEVELOPMENT OF THE STANDARDS

Tentative standards for grades of pork carcasses and fresh pork cuts were issued by the United States Department of Agriculture in 1931. These tentative standards were slightly revised in 1933 and published in Circular No. 288.

New standards for grades of barrow and gilt carcasses were proposed by the United States Department of Agriculture in 1949. These standards represented the first application of objective measurements as guides to grades for pork carcasses. Slight revisions were made in the proposed standards prior to promulgation, by the Secretary of Agriculture, as the official United States standards for grades of barrow and gilt carcasses, effective September 12, 1952.

The official standards were amended in July, 1955, by changing the grade designations Choice No. 1, Choice No. 2, and Choice No. 3 to U. S. No. 1, U. S. No. 2, and U. S. No. 3, respectively. In addition, the back fat thickness requirements were reduced for each grade and the descriptive specifications were reworded slightly to reflect the reduced fat thickness requirements and to allow more uniform interpretation of the standards.

#### BASES FOR PORK CARCASS STANDARDS

The standards for pork carcasses developed by the United States Department of Agriculture provide for segregation according to (a) class, as determined by the apparent sex condition of the animal at the time of slaughter, and (b) grade, which reflects quality of pork and the relative proportion of lean cuts to fat cuts in the carcass.

#### PORK CARCASS CLASSES

The five classes of pork carcasses, comparable to the same five classes of slaughter hogs, are barrow, gilt, sow, stag, and boar carcasses.

#### APPLICATION OF STANDARDS FOR GRADES OF BARROW AND GILT CARCASSES

Differences in barrow and gilt carcasses due to sex condition are minor, and the grade standards are equally applicable for grading both classes.

Barrow and gilt carcasses are graded primarily on the basis of (1) differences in yields of lean cuts and of fat cuts, and (2) differences in quality of cuts.

These factors vary rather uniformly and consistently from one grade to another. The U. S. No. 1 grade combines an optimum ratio of lean to fat with quality characteristics indicative of acceptable palatability. U. S. No. 2 and U. S. No. 3 grades have higher degrees of finish with resulting lower yields of lean cuts and higher yields of fat cuts than U. S. No. 1 grade. In addition, the cuts from U. S. No. 2 and U. S. No. 3 grades have more internal fat remaining after trimming of external fat than do the cuts from U. S. No. 1 grade carcasses. Medium grade carcasses have a lower degree of finish and a resulting higher ratio of lean to fat than U. S. No. 1, U. S. No. 2, and U. S. No. 3 grades; however, Medium grade carcasses are underfinished and lack the quality characteristics associated with acceptable palatability as evidenced by a lack of firmness and indications of little or no marbling in the lean. Cull grade carcasses are decidedly underfinished and the pork is soft and watery with no visible marbling. Only carcasses with the firmness appropriate to their degree of finish are included under the standards described in this part. However, carcasses which are typically soft or oily as a result of feeds producing soft or oily fat may be graded in accordance with these standards provided they are specially identified as soft or oily along with the grade.

Measurements of average back fat thickness in relation to carcass weight or length are closely related to yields of cuts and the quality of the cuts. The following table of measurements provides an objective guide in determining the barrow and gilt carcass grades.

*Weight and Measurement Guides to Grades for Barrow and Gilt Carcasses*

Carcass weight or carcass length <sup>1</sup>	Average back fat thickness (inches) <sup>2</sup> by grade				
	U. S. No. 1	U. S. No. 2	U. S. No. 3	Medium	Cull
Under 120 pounds or under 27 inches.	1.2 to 1.5----	1.5 to 1.8----	1.8 or more..	0.9 to 1.2----	Less than 0.9.
120 to 164 pounds or 27 to 29.9 inches.	1.3 to 1.6----	1.6 to 1.9----	1.9 or more..	1.0 to 1.3----	Less than 1.0.
165 to 209 pounds or 30 to 32.9 inches.	1.4 to 1.7----	1.7 to 2.0----	2.0 or more..	1.1 to 1.4----	Less than 1.1.
210 or more pounds or 33 or more inches.	1.5 to 1.8----	1.8 to 2.1----	2.1 or more..	1.2 to 1.5----	Less than 1.2.

<sup>1</sup> Either carcass weight or length may be used with back fat thickness as a reliable guide to grade. The table shows the normal length range for given weights. In extreme cases where the use of length with back fat thickness indicates a different grade than by using weight, final grade is determined subjectively as provided in the standards. Carcass weight is based on a chilled, packer style carcass. Carcass length is measured from the forward point of the aitch bone to the forward edge of the first rib.

<sup>2</sup> Average of measurements made opposite the first and last ribs and last lumbar vertebra.

The standards for grades of barrow and gilt carcasses include carcass measurements and descriptions of carcass characteristics which indicate the lean and fat yields and imply the quality of meat typical of the minimum degree of finish of each grade. Visual estimates of fat thickness normally alleviate the necessity for measuring carcasses in the grading operation. In addition to the measurement guides to grade differences, the standards also provide the basis for consideration of other characteristics. While carcass measurements furnish a reliable general guide to grade, the final grade of borderline carcasses may vary from that indicated by measurements due to consideration of other characteristics such as visual evidences of quality; meatiness; conformation of hams, loins, bellies, and shoulders; and fat distribution. However, application of these additional factors is limited to borderline carcasses, and in no case may the final grade be more than one-half of the width of a grade different than that indicated by carcass measurements. The standards describe carcasses typical of each grade and no attempt is made to describe the nearly limitless number of combinations of characteristics that may qualify a carcass for a particular grade.



## SPECIFICATIONS FOR OFFICIAL UNITED STATES STANDARDS FOR GRADES OF BARROW AND GILT CARCASSES

### U. S. NO. 1

Carcasses in this grade have near the minimum degree of finish required for the production of acceptable quality cuts. Meatiness based on yield of lean cuts in relation to carcass weight is slightly high; yield of fat cuts is slightly low. The ratio of total lean and fat to bone is slightly high. Carcasses possessing the minimum finish for U. S. No. 1 grade are slightly wide and moderately long in relation to weight. The back and loins are moderately full and thick with a well-rounded appearance. Hams are usually moderately thick, plump, and smooth and are slightly full in the lower part toward the hocks. Bellies are moderately long and smooth, slightly thick, and moderately uniform in thickness; the belly pocket is slightly thick. Shoulders are slightly thick and full but usually blend smoothly into the sides. The carcass is moderately well-balanced and smooth with moderately uniform development of the various parts. There are moderate quantities of interior fat in the region of the pelvis, a slightly thin but fairly extensive layer of fat lining the inside surface of the ribs, and a slightly small quantity of feathering. The flesh is firm. Both exterior and interior fats are firm, white, and of excellent quality. Carcasses with fat thickness typical of the thinner one-half of the U. S. No. 1 grade but with the firmness, quantity and distribution of interior fats, and belly thickness typical of the Medium grade shall be graded Medium. Carcasses with fat thickness typical of the fatter one-half of the U. S. No. 1 grade but with the fat distribution, meatiness, and thickness and fullness of hams, loins, shoulders, and bellies typical of the U. S. No. 2 grade shall be graded U. S. No. 2.

### U. S. NO. 2

Carcasses in this grade have a higher degree of finish than the minimum required for the production of acceptable quality cuts. Meatiness based on yield of lean cuts in relation to carcass weight is slightly low; yield of fat cuts is slightly high. The ratio of total lean and fat to bone is moderately high. Carcasses with the minimum finish for U. S. No. 2 grade are moderately wide and slightly short in relation to weight. The back and loins are full and thick and appear fuller near the edges than at the center. Hams are usually thick, plump, and smooth and are moderately full in the lower part toward the hocks. Bellies are moderately thick, smooth, slightly short, and rather uniform in thickness; the belly pocket is moderately thick. Shoulders are moderately thick and full but usually blend smoothly into the sides. The carcass is well-balanced and smooth with rather uniform development of the various parts. There are slightly large quantities of interior fat in the region of the pelvis, a slightly thick and moderately extensive layer of fat lining the inside surface of the ribs, and moderate feathering. The flesh is firm. Both exterior and interior fats are firm, white, and of excellent quality. Carcasses with fat thickness typical of the thinner one-half of the U. S. No. 2 grade but with the fat distribution, meatiness, and thickness and fullness of hams, loins, shoulders, and bellies typical of the U. S. No. 1 grade shall be graded U. S. No. 1. Carcasses with fat thickness typical of the fatter one-half of the U. S. No. 2 grade but with the fat distribution, meatiness, and thickness and fullness of hams, loins, shoulders, and bellies typical of the U. S. No. 3 grade shall be graded U. S. No. 3.

### U. S. NO. 3

Carcasses in this grade have a decidedly higher degree of finish than the minimum required for the production of acceptable quality cuts. Meatiness based on yield of lean cuts in relation to carcass weight is low; yield of fat cuts is high. The ratio of total lean and fat to bone is high. Carcasses with the minimum finish for U. S. No. 3 are wide and short in relation to weight. The back and loins are very full and thick and appear especially full near the edges. Hams are usually thick, very plump, and smooth and are full in the lower part toward the hocks. Bellies are short, thick, smooth, and uniform in thickness; the belly

pocket is thick. Shoulders are thick and full but usually blend smoothly into the sides. The carcass is well-balanced and smooth with uniform development of the various parts. There are large quantities of interior fat in the region of the pelvis, a moderately thick and extensive layer of fat lining the inside surface of the ribs, and slightly abundant feathering. The flesh is firm. Both exterior and interior fats are firm, white, and of excellent quality. Carcasses with nearly minimum fat thickness for the U. S. No. 3 grade but with the fat distribution, meatiness, and thickness and fullness of hams, loins, shoulders, and bellies typical of the U. S. No. 2 grade shall be graded U. S. No. 2.

#### MEDIUM

Carcasses in this grade have a lower degree of finish than the minimum required for the production of acceptable quality cuts. Yield of lean cuts in relation to carcass weight is moderately high; yield of fat cuts is moderately low. The ratio of total lean and fat to bone is moderately low. Carcasses with the minimum finish for Medium grade are rather narrow and long in relation to weight. The back and loins are rather thin and deficient in fullness and slope away from the center toward the sides. Hams are usually slightly thin and lacking in plumpness and taper slightly toward the hocks. Bellies are moderately thin, long, slightly wrinkled, and moderately uneven in thickness; the belly pocket is moderately thin. Shoulders tend to be thin and flat but often show prominence at the junction with the sides. The carcass tends to be uneven and rough with slightly irregular development of the various parts. There are slightly small quantities of interior fat in the region of the pelvis, a scanty and incomplete layer of fat lining the inside surface of the ribs, and only a small quantity of feathering. Both exterior and interior fats are moderately soft, white to creamy white, and of low quality. The flesh is moderately soft and has little evidence of marbling. Carcasses with the fat thickness typical of the fatter one-half of the Medium grade but with the firmness, quantity and distribution of interior fats, and belly thickness typical of the U. S. No. 1 grade shall be graded U. S. No. 1. Carcasses with the fat thickness typical of the thinner one-half of the Medium grade but with the firmness, quantity and distribution of interior fats, and belly thickness typical of the Cull grade shall be graded Cull.

#### CULL

Carcasses in this grade have a considerably lower degree of finish than the minimum required for the production of acceptable quality cuts, and most cuts are suitable only for processing. Yield of lean cuts in relation to carcass weight is high; yield of fat cuts is low. The ratio of total lean and fat to bone is low. Carcasses with the degree of finish typical of the Cull grade are narrow and long in relation to weight. The back and loins are thin and decidedly lacking in fullness and have a definite slope away from the center toward the sides. Hams are usually thin, flat, and wrinkled, and show a definite taper toward the hocks. Bellies are very long, thin, wrinkled, and uneven in thickness; the belly pocket is very thin. Shoulders are thin and flat but often prominent at the junction with the sides. The carcass is uneven and rough with irregular development of the various parts. There are only small quantities of interior fat in the region of the pelvis and little or no fat as lining on the inside surface of the ribs or as feathering between the ribs. Both exterior and interior fats are soft, creamy white to white, and of low quality. The flesh is soft and watery and has no evidence of marbling. Carcasses with nearly maximum fat thickness for the Cull grade but with the firmness, quantity and distribution of interior fats, and belly thickness typical of the Medium grade shall be graded Medium.